

Notice of Allowability

Application No.

10/025,464

Examiner

Hai C Pham

Applicant(s)

VAZAN, SHAHRIAR

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/05/03.
2. ☒ The allowed claim(s) is/are 1,3,4 and 6.
3. ☒ The drawings filed on 26 December 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No. _____.
 - (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
 - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| <input type="checkbox"/> Notice of References Cited (PTO-892) | <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____ |
| <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No. _____ | <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | <input type="checkbox"/> Other |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Attorney Joseph Young on January 9, 2004.

The application has been amended as follows:

IN THE CLAIMS:

Claim 3: Rewrote claim 3 as follows:

--3. The method for correcting exposure non-uniformities in a printbar having a plurality of individual LEDs [of claim 1], said method [further] comprising the steps of:
calibrating said printbar by determining a first set of correction values for each corresponding one of the individual LEDs, storing said first set of correction values and a plurality of sets of correction values in a correction memory, each said correction value being a digital value for causing output of light of a substantially predetermined light intensity from the corresponding one of said individual LEDs;
measuring the light intensity from a predetermined set of individual LEDs of said printbar,

comparing said measured light intensity with a uniform light intensity, determining a difference between said measured light intensity and said uniform light intensity,

loading one of said plurality of sets of correction values into said printbar, when the determined difference between said measured light intensity and said uniform light intensity exceeds a predetermined maximum difference,

up/down counting a line of data for said printbar from a preloaded midrange to form digital signals,

scaling and quantizing said digital signals,

shuffling said scaled quantized digital signals, and

driving said predetermined set of individual LEDs with said shuffled digital signals.

Claim 4:

- Line 15, after "to" changed "digital" to --digitalize--.

Claim 6: Rewrote claim 6 as follows:

--6. [The] An LED printbar [of claim 4] comprising:

a plurality of individual LEDs; said plurality of individual LEDs having a first plurality of LEDs to image a photoreceptor and a second plurality of LEDs to image a photodetector, said first plurality of LEDs being larger in number than said second plurality of LEDs;

a current driver having a control input, said current driver for applying a drive current to said plurality of individual LEDs, wherein first drive current is controlled by said control input;

a correction memory for storing a plurality of sets of correction values, said correction memory for applying one of said sets of correction value to said control input;

sensing means for comparing the light output from said second plurality of LEDs at said photodetector to a predetermined light output for loading the appropriate one of said plurality of sets of correction values from said correction memory to said control input,

wherein said sensing means [comprise] comprises

an up/down counter for counting a line of data from said digital signals,

a scaler and a quantizer to scale and [quantizing] quantize said digital signals,

and

a shuffler to shuffle said digital signals before applying said shuffled digitalized drive current signals to said second plurality of LEDs.--

2. The following is an examiner's statement of reasons for allowance: the primary reason for the indication of the allowability of the claimed invention, with respect to claims 1 and 4, is the inclusion of the limitations, in the combination as currently claimed, that the claimed method and apparatus for correcting exposure non-uniformities in a printbar having a first plurality of LEDs and a second plurality of LEDs

to image a photoreceptor, the first plurality of LEDs being larger in number than the second plurality of LEDs, the apparatus further comprising a current driver for applying a drive current to the plurality of individual LEDs, wherein first drive current is controlled by the control input, a correction memory for storing a plurality of sets of correction values, the correction memory for applying one of the sets of correction value to the control input, a sensing means for comparing the light output from the second plurality of LEDs at the photodetector to a predetermined light output for loading the appropriate one of the plurality of sets of correction values from the correction memory to the control input, an A/D converter to digitalize the drive current, and a shuffler to shuffle the digital signals before applying the shuffled digitalized drive current signals to the second plurality of LEDs.

The primary reason for the indication of the allowability of the claimed invention, with respect to claims 3 and 6, is the inclusion of the limitations, in the combination as currently claimed, that the claimed method and apparatus for correcting exposure non-uniformities in a printbar having a first plurality of LEDs and a second plurality of LEDs to image a photoreceptor, the apparatus further comprising a current driver, first drive current being controlled by the control input, a correction memory for storing a plurality of sets of correction values, and for applying one of the sets of correction value to the control input, and a sensing means comprising an up/down counter for counting a line of data from the current driver to form digital signals, a scaler and a quantizer to scale and quantize the digital signals, and a shuffler to shuffle the digital signals before applying the shuffled digitalized drive current signals to the second plurality of LEDs.

The prior art made of record, considered alone or in combination, fails to teach or suggest the provision of the A/D converter to digitalize the drive current driving a first and a second plurality of individual LEDs, and a shuffler to shuffle the digital signals before applying the shuffled digitalized drive current signals to the second plurality of LEDs of the printbar.

The prior art of record, considered alone or in combination, fails to teach or suggest the provision of the up/down counter for counting a line of data from the current driver to form digital signals, a scaler and a quantizer to scale and quantize the digital signals, and a shuffler to shuffle the digital signals before applying the shuffled digitalized drive current signals to the second set of plurality of LEDs of the printbar.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (703) 308-1281. The examiner can normally be reached on T-F (8:30-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (703) 308-4896. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722, (703) 308-7724, (703) 308-7382, (703) 305-3431, (703) 305-3432.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A handwritten signature in cursive script, appearing to read 'Hai Pham'.

HAI PHAM
PRIMARY EXAMINER

January 15, 2004